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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,208	05/28/2002	David K. Benson	NREL 99-03	6631
7590	02/27/2007		EXAMINER	
Paul J White National Renewable Energy Laboratory 1617 Cole Boulevard Golden, CO 80401			MOSS, KERI A	
			ART UNIT	PAPER NUMBER
			1743	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS <input checked="" type="checkbox"/>	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/937,208	BENSON ET AL.	
	Examiner	Art Unit	
	Keri A. Moss	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 11/3/06 and 2/2/07.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 10, 12-13, 19-31, 40 and 42-59 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 10,12,13,19-31,40 and 42-59 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.
_____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicants amendments filed on November 3, 2006 and February 2, 2007 are hereby acknowledged. Claims 10, 12-13, 19-31, 40, 42-59 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 3, 2006 and February 2, 2007 have been entered.

Claim Objections

3. Claim 26 is objected to because of the following informalities: claim 26 should read "The method of claim 25...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 10, 12-13, 19-31 and 40-59 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The formula for accounting for variations in temperature in calculating initial hydrogen concentration included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Applicant teaches on page 19 lines 16-19 that the calibration step accounts for variations in temperature. It is unpredictable the extent to which the temperature or variations in temperature would affect the hydrogen diffusivity rate of a particular piece of metal. Previously discussed prior art references Sato in Figure 4 and Godai in Figure 8 teach that the hydrogen diffusivity rate varies depending on the temperature and specifically is higher at higher temperatures. Applicant has not taught how applicant's calculation of initial diffusible hydrogen concentration, which is based on the hydrogen diffusivity rate, is influenced by temperature. Applicant has provided no working examples teaching how to account for variations in temperature. It would require undue experimentation for one of ordinary skill in the art to determine how to account for variations in temperature when calibrating the signal analyzer of the disclosed hydrogen sensor in accordance with the disclosure. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

6. Claims 10, 12-13, 19-31, 40 and 42-59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention. Applicant's specification describes the invention used with steel while the claims include use of the invention with all metals. On page 8 of the specification, lines 16-19, applicant makes reference to geometric and mass calculations based on weld metals and weld processes in calculating the amount of material being sampled. Examiner did not find these calculations within the specification. How do variables such as the type of metal, the thickness of the sample and the type of weld process influence the hydrogen diffusivity rate and also the calculation of the initial diffusible hydrogen concentration?

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 10, 12-13, 21, 28-31 and 40-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what applicant means by the word "initial." Does initial mean the amount of hydrogen in the metal immediately after it is made and before it is cooled. As discussed supra, the prior art teaches that a weld effuses hydrogen at a faster rate at higher temperatures. Therefore, we can assume that the diffusible hydrogen concentration in a metal weld is significantly higher prior to cooling than after cooling. It is then important to determine whether applicant's calculations refer to the concentration in the weld prior to or after cooling.**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keri A. Moss whose telephone number is 571-272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keri A. Moss
Examiner
Art Unit 1743

KAM 2/16/07


Jill Warden
Supervisory Patent Examiner
Technology Center 1700